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File Code: 3410 **Date:** January 11, 1998

Route To: *

Subject: Douglas-fir Tussock Moth Monitoring Results for Arizona, 1998

To: Arizona Forest Supervisors

Douglas-fir tussock moth (dftm) is important native defoliator affecting mixed conifer ecosystems in the inland west. Outbreaks can result in spectacular defoliation and associated top kill and tree mortality. Because outbreaks can develop so rapidly and with so little apparent warning, an early warning detection system was developed for use by entomologists and resource managers. It is designed to provide 1 to 2 years advance notice that an outbreak may be building. In Arizona this system has been in place since 1992. It consists of a system of insect traps that are placed in suitable areas during the summer, around the time of adult emergence. In Arizona, traps have been located in the White Mountains, Mogollon Rim above Payson, Sierra Ancha Mountains, Pinal Mountains, Pinaleno Mountains, Catalina Mountains, and the Bradshaw Mountains. Traps are placed out and collected every year. The trapping program is a cooperative effort between this office, the AZ State Land Department, several Forests, and the Forest Health Technology Enterprise Team (which provides the traps). This letter documents results for the 1998 trapping program.

Survey results from 1998 indicate that visible defoliation from dftm could occur in the Pinal Mountains near Globe in one to two years. No visible defoliation is expected at any of the other monitoring sites. Dftm populations have been rising in the Pinal Mountains since 1996. The last visible defoliation occurred there in 1992, however, that was a small outbreak which didn't result in any other impacts, such as top kill or mortality. The same thing could happen in this instance. Dftm outbreaks are difficult to predict in terms of size and intensity. What the traps do tell us is that there is the potential for a significant outbreak. They also provide managers with some lead time to plan a response, if desired. The last large outbreak in the Pinal Mountains occurred in 1970 when 400 acres were moderately to heavily defoliated. That outbreak declined due to natural causes before growing any larger. The largest known outbreak occurred in the same area in the late 1950's, when 3000 acres were affected.

Many of the mixed conifer forests in the southwest are quite susceptible to this insect. It seems to prefer sites that may be described as ridge-tops, upper slopes, poorer productivity (relative), and mature multi-storied stands dominated by the preferred host species, white fir and Douglas-fir. We are available to provide any needed assistance in managing tussock moth. We can provide more information, help to inform the public of an impending outbreak and its effects, and if desired support suppression of the outbreak. In the long run, the most effective measures for preventing damaging outbreaks would be to use silvicultural or other treatments that would reduce density and maintain seral pine or hardwood species in vulnerable areas.

If you have any questions concerning Douglas-fir tussock moth feel free to call Jill Wilson, Entomologist, in our Arizona Zone Office at 520-556-2074 or via email at jwilson/r3,coconino.

/s/ Borys M. Tkacz

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Arizona Zone Leader

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